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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/547,663	04/12/2000	EMI TAKABAYASHI	A-355	6241
802	7590	12/24/2003	EXAMINER	
DELLETT AND WALTERS 310 S.W. FOURTH AVENUE SUITE 1101 PORTLAND, OR 97204.			CHANG, AUDREY Y	
			ART UNIT	PAPER NUMBER
			2872	

DATE MAILED: 12/24/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)
	09/547,663	TAKABAYASHI ET AL. <i>PW</i>
	Examiner	Art Unit
	Audrey Y. Chang	2872

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) Responsive to communication(s) filed on 03 October 2003.

2a) This action is FINAL. 2b) This action is non-final.

3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) Claim(s) 1-3 and 5-18 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5) Claim(s) _____ is/are allowed.

6) Claim(s) 1-3 and 5-18 is/are rejected.

7) Claim(s) _____ is/are objected to.

8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) The specification is objected to by the Examiner.

10) The drawing(s) filed on _____ is/are: a) accepted or b) objected to by the Examiner.

 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a) All b) Some * c) None of:

 1. Certified copies of the priority documents have been received.

 2. Certified copies of the priority documents have been received in Application No. _____.

 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

13) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

 a) The translation of the foreign language provisional application has been received.

14) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

1) Notice of References Cited (PTO-892)

2) Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .

4) Interview Summary (PTO-413) Paper No(s) _____ .

5) Notice of Informal Patent Application (PTO-152)

6) Other: _____ .

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on **October 3, 2003** has been entered.
2. This Office Action is also in response to applicant's amendments filed on July 3, 2003 and October 3, 2003, which have been entered as paper numbers 16 and 20.
3. By these amendments, the applicant has amended claims 1, 5-6, 8, and has canceled claim 4.
4. Claims 1-3, and 5-18 remain pending in this application.
5. The rejections to claims under 35 USC 112, first paragraph, set forth in the previous Office Action dated January 6, 2003 *are withdrawn* in response to applicant's amendment.
6. The rejections to claims under 35 USC 112, second paragraph, set forth in the previous Office Action dated January 6, 2003 *are withdrawn* in response to applicant's amendment.

Response to Amendment

7. The amendment filed on October 3, 2003 is objected to under 35 U.S.C. 132 because it introduces new matter into the disclosure. 35 U.S.C. 132 states that no amendment shall introduce new matter into the disclosure of the invention. The added material which is not supported by the original disclosure is as follows: **claim 1 has been amended** to include the phrase “a plane shadow of said color pattern of plane characters or images is reconstructably recorded on a *surface* different from a surface of said color pattern”. The specification only gives support for the plane shadow image to be “reconstructed” at a *surface* or *image plane* different from the *image plane* of the reconstructed color pattern, (please see

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Figure 7, 29g and 30m are of *reconstructed* image of the color pattern and plane shadow, and they are at different image plane).

Applicant is required to cancel the new matter in the reply to this Office Action.

Claim Rejections - 35 USC § 112

8. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

9. **Claims 1-3, 5-7, 14 and 17-18 are rejected under 35 U.S.C. 112, first paragraph,** as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The reasons for rejection based on the *newly added features* are set forth in the previous paragraph.

10. **Claim 10 is rejected under 35 U.S.C. 112, first paragraph,** as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. The specification and the claim fail to teach how could the photosensitive material be deactivated yet a reflection type hologram of scatter plate is recorded in the deactivated region.

11. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

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12. **Claims 7, and 14 are rejected under 35 U.S.C. 112, second paragraph,** as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The phrase “any shadow of said color pattern of plane characters or images is unrecorded” recited in claim 7 is in direct contradiction to its based claim (claim 1) wherein the plane shadow is specifically recited to be recorded. Claim 14 inherits the rejection from its based claim.

Claim Objections

13. **Claim 17 is objected to because of the following informalities:**

(1). The phrase “a shadow” recited in claim 17 is vague and indefinite since it is not clear how does this shadow relate to the plane shadow recited in its based claim. Also the phrase “is reconstructably recorded on the surface of a color three-dimensional subject image” recited in claim 17 is wrong since (1) it is not sure if the three-dimensional subject image is the reconstructed image from the recorded hologram or not, and (2) it is impossible to record shadow image on an image. They have to be recorded within the photosensitive recording medium but the reconstructed images can be designed to be at different spatial locations. Appropriate correction is required.

Claim Rejections - 35 USC § 103

14. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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15. **Claims 8-9, 11-13 and 15-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over the patent issued to Waitts in view of the patents issued to Cowan and Wreede et al (PN. 5,499,118).**

Waitts teaches a *graphical material* that is comprised of *holographic area* (312, Figure 4) for reconstructing three-dimensional object (such as 18, 20 and 22) and *diffraction grating area* (326, Figure 4) for reconstructing two-dimensional color pattern such as logo or trademark. The holographic area and the diffraction grating area are *superimposed* to each other, (please see Figure 4). Both the hologram and the diffraction grating are reconstructably recorded such that they each are reconstructed to display hologram image of the 3D object or the 2D logo or trademark. Waitts teaches that the hologram is visible light hologram, which means it is colored. The 2D logo image recorded within the diffraction grating also has color patter such as rainbow. Waitts further teaches that it is commonly known in the art that diffraction gratings may be produced optically by the interference pattern of a plurality of intersecting beams, which known in the art as holographically, (please see column 1, lines 65-67). This means the diffraction gratings that have the 2D or plane graphic information are also holographic elements. Waitts teaches that the holograms for the 3D object and the holographically recorded diffraction gratings for the 2D graphic information may be recorded in the same recording medium. It is implicitly true that holographic recording involves recording interference patterns of the 3D object and the 2D graphic information modulated light beam with a reference beam.

With regard to the features concerning using hologram plate to record the graphical information, the process of recording a *master* hologram or hologram plate and then use the reconstructed image light from the master hologram to create the object beam for recording or copying a hologram is an extremely well-known process in the art. This is demonstrated by the teachings of Cowan. Cowan teaches to record a *reflection type master hologram* by placing the object (100, Figure 9) at the opposite side of the recording medium (115). The reference light (120) reflected off the object is interfered with the incident

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reference beam to create interference fringe patterns therefore hologram within the recording medium. The master hologram (150) is then placed at the backside of the recording plate (190, Figure 13) to be reconstructed by using incident reference light beam to create the object beam to interfere with the reference beam to record the hologram within the recording plate. Wreed et al in the same field of endeavor also teaches to use two master holograms (such as 25 and 29, in Figure 1) to create two object light beams to be recorded in a single recording medium, (35). The two master holograms are placed with a space interposed between each other and with one placed in front of the other, which will be able to allow the holograms recorded to reproduce hologram images at different spatial locations or depth. It would then have been obvious to one skilled in the art to apply the teachings of Cowan and Wreed et al to use the two-step method for creating hologram plates and then reconstructing the hologram plate for recording both the holographic area and the holographically recorded diffraction area for the benefit of providing an alternative and standard process to create the graphic materials, such that the reconstructed images could have different spatial locations as desired.

16. **Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over the patents issued to Waitts, Cowan and Wreed et al as applied to claim 8 above, and further in view of the patent application of Nishikawa et al (US 2001/0053004).**

The graphical materials having holograms for creating 3D object image and holographically-recorded diffraction gratings for creating 2D logos or trademark as taught by Waitts in view of the teachings of Cowan and Wreed et al as applied for claim 8 above have met all the limitations of the claim with the exception that they do not teach explicitly about the deactivation of the recording medium and recording hologram with scatter plate. Nishikawa et al in the same field of endeavor teaches to record a reflection type hologram with a *diffusion* plate. Nishikawa et al also teaches that certain areas of the recording medium can be deactivated in order to stabilize the recorded hologram, (please see Figures

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1 and 32). It would then have been obvious to one skilled in the art to apply the teachings of Nishikawa et al to modify the graphical materials of Waitts for the benefit of using a recorded diffusing plate to create more uniformly distributed image light and to stabilize the recorded holograms within the recording medium.

Response to Arguments

17. Applicant's arguments with respect to claims 1-3, 5-18 have been considered but are moot in view of the new ground(s) of rejection.

Allowable Subject Matter

18. The following is a statement of reasons for the indication of allowable subject matter: of the prior art references none has disclosed a color hologram display that is comprised of a reflection type volume hologram wherein the hologram comprises a color pattern of plane characters or images and a color three-dimensional subject image recorded in a single photosensitive material with the reconstructed images of the color pattern changes as the observation depth varies and a plane shadow of the color patterns or images are holographically recorded in the photosensitive material such that the reconstructed image plane of the plane shadow is different from the reconstruction image plane of the color pattern.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Audrey Y. Chang whose telephone number is 703-305-6208, (571-272-2309 after January 20, 2004). The examiner can normally be reached on Monday-Friday (8:00-4:30), alternative Mondays off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Drew Dunn can be reached on 703-305-0024. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0956.

Audrey Y. Chang
Primary Examiner
Art Unit 2872

A. Chang, Ph.D.